

First named inventor: Hanks
Serial no. 10/652,005
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Attorney docket no. 200209014-1

Page 2

In the claims

1. (original) A method of focus control, comprising:
 passing a light source beam over a reflectivity change on a storage media and on to a leading photo sensor and a trailing photo sensor;
 determining whether the leading photo sensor or the trailing photo sensor had a first change in reflectivity;
 if the leading sensor experienced the first change in reflectivity, then adjusting a focus actuator to move a focus lens farther from the storage media; and
 if the trailing sensor experienced the first change in reflectivity, then adjusting the focus actuator to move the focus lens closer to the storage media.
2. (original) The method of claim 1, further comprising:
 if the trailing sensor and the leading sensor experienced a change in reflectivity at substantially the same time, then leaving the focus lens in a current location.
3. (original) The method of claim 1, wherein the storage media is selected from the group consisting of compact discs and digital versatile discs.
4. (original) The method of claim 1, wherein the storage media is a removable storage media.
5. (original) The method of claim 1, wherein the storage media is a non-removable storage media.

First named inventor: Hanks
Serial no. 10/652,005
Filed 8/29/2003
Attorney docket no. 200209014-1

Page 3

6. (original) The method of claim 1, wherein the leading photo sensor comprises a first set of multiple photo sensor segments.

7. (original) The method of claim 6, wherein the trailing photo sensor comprises a second set of multiple photo sensor segments.

8. (original) The method of claim 1, wherein:
the leading photo sensor comprises a first pair of photo sensors from a quadrature photo sensor;
and
the trailing photo sensor comprises a second pair of photo sensors from the quadrature photo sensor.

9. (withdrawn) A method of focus control, comprising:
passing a light source beam over a reflectivity change on a storage media and on to a leading photo sensor and a trailing photo sensor;
determining an absolute time between a reflectivity change in the leading and trailing photo sensors;
determining an actual magnitude proportional to a spot size and a focal position from the absolute time; and
comparing the actual magnitude to a desired magnitude.

10. (withdrawn) The method of claim 9, wherein calculating the actual magnitude from the absolute time between the reflectivity change and the velocity of the storage media comprises dividing the absolute time by a velocity of the storage media.

First named inventor: Hanks
Serial no. 10/652,005
Filed 8/29/2003
Attorney docket no. 200209014-1

Page 4

11. (withdrawn) The method of claim 10, wherein the velocity of the storage media comprises a relative velocity between the storage media and the light source beam.

12. (withdrawn) The method of claim 9, further comprising:
if the actual magnitude is greater than the desired magnitude, determining whether the leading photo sensor or the trailing photo sensor experienced a first reflectivity change.

13. (withdrawn) The method of claim 12, further comprising:
if the leading photo sensor experienced the first reflectivity change, then adjusting a focus actuator so a focus lens is moved farther from the storage media; and
if the trailing photo sensor experienced the first reflectivity change, then adjusting the focus actuator so the focus lens is moved closer to the storage media.

14. (withdrawn) The method of claim 9, further comprising:
if the actual magnitude is less than the desired magnitude, determining whether the leading photo sensor or the trailing photo sensor experienced a first reflectivity change.

15. (withdrawn) The method of claim 14, further comprising:
if the leading photo sensor experienced the first reflectivity change then adjusting a focus actuator so a focus lens is moved closer to the storage media;
if the trailing photo sensor experienced the first reflectivity change, then adjusting the focus actuator so the focus lens is moved farther from the storage media; and
if the trailing photo sensor and the leading photo sensor experienced a reflectivity change a substantially the same time, adjusting the focus actuator so that the focus lens is moved closer to the storage media.

First named inventor: Hanks
Serial no. 10/652,005
Filed 8/29/2003
Attorney docket no. 200209014-1

Page 5

16. (withdrawn) The method of claim 14, further comprising:

if the leading photo sensor experienced the first reflectivity change then adjusting a focus actuator so a focus lens is moved closer to the storage media;

if the trailing photo sensor experienced the first reflectivity change, then adjusting the focus actuator so the focus lens is moved farther from the storage media; and

if the trailing photo sensor and the leading photo sensor experienced a reflectivity change a substantially the same time, adjusting the focus actuator so that the focus lens is moved farther from the storage media.

17. (withdrawn) A method of focus error signal generation, comprising scaling a focus error signal in proportion to a difference in time between a leading photo sensor reflectivity change and a trailing photo sensor reflectivity change caused by a feature of reflectivity change on a storage media.

18. (withdrawn) A method of imaging a label layer on a storage media, comprising:

generating a focus error signal using the method of claim 17;

adjusting a focus actuator to obtain a desired focus spot size relative to the focus error signal; and

selectively turning a light source on over areas of the label layer which are sensitive to the light source to produce a visible image on the image layer.

19. (withdrawn) The method of claim 18, wherein the storage media is selected from the group consisting of compact discs and digital versatile discs.

20. (withdrawn) A storage media apparatus, comprising:

a focus lens;

First named inventor: Hanks
Serial no. 10/652,005
Filed 8/29/2003
Attorney docket no. 200209014-1

Page 6

a focus actuator coupled to the focus lens;
a light source configured to emit a light beam through the focus lens onto a storage media;
a photo sensor configured to produce:
 a leading signal responsive to a leading edge of the light beam; and
 a trailing signal responsive to a trailing edge of the light beam; and
a controller coupled to the leading signal and the trailing signal.

21. (withdrawn) The storage media apparatus of claim 20, wherein the storage media is selected from the group consisting of a compact disc and a digital versatile disc.

22. (withdrawn) The storage media apparatus of claim 20, wherein the light source is further configured to emit the light beam through the focus lens onto a label side of the storage media.

23. (withdrawn) The storage media apparatus of claim 20, wherein the storage media is permanently housed in the storage media apparatus.

24. (withdrawn) The storage media apparatus of claim 20, wherein the storage media is removeably housed in the storage media apparatus.